



# INNOVATING EXCELLENCE

## AWARDS RECOGNIZE EFFORTS TO IMPROVE ENVIRONMENT IN TEXAS

**T**hanks to tremendous efforts on the part of a remarkable group of organizations and individuals, Texans are learning what it takes to protect and preserve the state's valuable resources for generations to come.

At a special banquet on May 17 at the Environmental Trade Fair and Conference at the Austin Convention Center, the Texas Commission on Environmental Quality's commissioners recognized this group with the state's highest environmental honor: the Texas Environmental Excellence Award. The awards have been given since 1993 in conjunction with the Office of the Governor.

The winners are a diverse group, consisting of Fort Hood, the Valley Nature Center, the Amarillo Veterans Affairs Medical Center, the Mansfield Independent School District, the University of Texas at Austin, the Texas Project for Ag Water Efficiency: Citrus, the Colorado River Alliance, Teens4Green, and Martha McLeod.

### **Civic/Community (Two winners!) Fort Hood**

As one of the largest Army installations and home to much of the country's heavy armor, Fort Hood—located between Austin and Waco, in Central Texas—is critical to the United States' military might. Fort Hood is also a leader in environmental sustainability.

To be a more responsible user of electricity, the post installed a system that controls heating, ventilation, and air conditioning at 29,161 locations. Its new medical center is a gold-certified LEED building, designed to reduce both energy and water use. In addition, Fort Hood installed 132 acres of solar panels and is also installing off-site wind turbines, which all told should provide the post with about 50 percent of its energy requirements.

Conserving water is another of Fort Hood's continuing efforts. One project



that reduced water use was an upgrade to the post's drinking-water system, allowing remote control of equipment. This system helps the post to maintain and even improve water quality while minimizing system flushes, saving about 96 million gallons of water each year.

Another project that saves drinking water involved switching a portion of its irrigation system to collected rainwater, saving about 25 million gallons of drinking water each year. These and other projects reduced water use nearly in half: from 2,063 million gallons in 2007 to 1,147 million gallons in 2016.

Besides these energy and water projects, Fort Hood has numerous other initiatives designed to protect endangered species, reduce waste, and provide outreach to the greater community.



## Valley Nature Center

Once you visit the Valley Nature Center, a natural gem surrounded by urban development in Weslaco, and meet the staff and volunteers who work there, you realize how important its work is for the Lower Rio Grande Valley.



The center's new facility includes a 15,000-gallon rainwater collection system, solar panels, recycling bins, and a green roof covering its outside patio that reduces water runoff and heat-island effect. Inside, there are a wide variety of interactive exhibits.

Behind the main building, the center has preserved a natural area of about six acres, including native vegetation with walking trails, wetlands and ponds, bird-feeding stations, butterfly gardens, interpretive signage, and much more. This natural wonder attracts many of the Rio Grande Valley's 500-plus species of native and migratory birds and 300 butterfly species, including many species found only in the region.

Each year, the Valley Nature Center serves about 5,000 schoolchildren and 15,000 other visitors, introducing them to the wonders of nature while fostering an appreciation of the Lower Rio Grande Valley's unique flora and fauna. The center also promotes water conservation by selling native plants to the public.

## Pollution Prevention Amarillo Veterans Affairs Medical Center

By harvesting the power of the sun and using thermal energy storage, the Amarillo Veterans Affairs Medical Center, in the Panhandle, has been able to produce much of its own power and even put energy back into the local electrical grid.



The Amarillo center's thermal storage system, completed in 2011, shifts air-conditioning peak load from daytime to nighttime. It produces up to 32,000 gallons of ice slush each night, which is then used to cool the facility the next day.

The VA center's parking areas were covered with about 9,000 photovoltaic panels to collect the energy of the sun, which is plentiful in Amarillo's semiarid climate. The panels came online in 2015.

The PV panels produce about 3.5 million kilowatt-hours annually. And, since covered parking was the necessary mounting structure for them, they produce the added benefit of providing shade for the parked cars!

When the thermal storage system runs in tandem with the solar-power system, the center can defer daytime air conditioning, which fulfills the goal of net-zero energy consumption during peak sunlight and reduces the load on the electrical grid.

Not only does the center produce about a third of its own power, but it also saves hundreds of thousands of dollars by using these two technologies.

## Innovative Operations/ Management Mansfield ISD

You might think that only through a major investment would you be able to drastically reduce utility expenses across an entire school district. And it's true that these kinds of capital improvements can be effective. However, for the Mansfield Independent School District, located in the Dallas–Fort Worth metroplex, it was a shift in mindset and behavior that enabled it to save millions of dollars.

In 2012, Mansfield ISD started an energy-conservation program with three primary goals: reduce the environmental



impact of school-district operations; reduce overall utility expenditures by 20 percent; and educate students, teachers, and community members about their roles in implementing efficient practices.

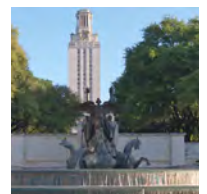
These efforts were so successful that they saved the district nearly \$7 million—money that it now uses elsewhere to improve the learning experience for students.

The conservation program focuses on precise scheduling of heating, ventilation, air conditioning, and lighting; close monitoring of water bills to detect leaks; and replacing light bulbs with new, energy-efficient LED bulbs.

The program created significant reductions in utility expenses across the board. Thus far, the district has saved 40 million kilowatt-hours of electricity, 20,599 thousand cubic feet of natural gas, and more than 450 million gallons of water.

## Water Conservation University of Texas at Austin

In 2008, the president of the University of Texas at Austin announced his goal to significantly reduce water usage on campus. Nine years later, it's clear that the goal is being met: After revamping the campus's irrigation system, UT Austin has seen a 66 percent drop in water usage over the last six years, saving more than 100 million gallons per year.



The first step was a comprehensive audit of the university's central irrigation system. Armed with the resulting information, which showed where the university could improve, Markus Hogue, a licensed irrigator for the campus, spent the last six years redesigning and updating the irrigation system.

The new system includes a live weather feed, evapotranspiration data mechanisms, rain buckets, low-precipitation nozzles,

flow monitoring with the ability to regulate irrigation schedules, and leak detection that automatically shuts down leaks in the system.

The new irrigation system also collects and stores water data. This data can reveal trends or potential issues, thereby helping the university make additional adjustments to further improve the system. Faculty and students also have access to the data, which is incorporated into university courses and student research.

### **Agriculture** **Texas Project for Ag Water Efficiency: Citrus**

Citrus has long been one of the Lower Rio Grande Valley's most important crops. But producing high-quality fruit and sustaining ideal tree health requires water year-round.



The Texas Project for Ag Water Efficiency was a 10-year project testing different strategies for maximizing the efficiency of water use in the Lower Rio Grande Valley. Part of this project included research on citrus, a joint effort between Texas A&M University-Kingsville's Citrus Center in Weslaco, Texas A&M AgriLife Research and Extension in Corpus Christi and Weslaco, and Harlingen Irrigation District Cameron County No. 1.

The project participants eventually discovered that the technique that saved the most water and produced the most economic gains was narrow-border flood irrigation.

Citrus growers in the area commonly use large-pan irrigation, flooding entire fields with about six inches of water. Narrow-border flood irrigation is a modified version that requires a flat field and berms between each of the citrus rows. With narrow-border flooding, only the channels beneath the citrus trees receive

water. This reduces the amount of water that moves beyond the root zone, helping keep fertilizers in place, to be absorbed by the trees.

Compared to the large-pan method, narrow-border irrigation reduces water use in citrus groves by 35 percent, saving producers about \$1,000 per acre each year. The research group estimates that if the citrus industry in the Lower Rio Grande Valley converted entirely to narrow-border irrigation, it could save about 13 billion gallons of water per year.

### **Education** **Colorado River Alliance**

Over the last 20 years, the Colorado River Alliance has been dedicated to conserving and protecting Texas's Colorado River, which originates south of Lubbock and flows southeast though Austin into the Gulf of Mexico. To further this work, the alliance developed the Texas Colorado River Rolling Exhibit, an environmental-education program designed to inspire students and community members to protect water quality and quantity in the Colorado River Basin.

The main feature of the program is a 42-foot long mobile exhibit that brings an interactive field-trip experience to middle-school students and communities along the river's watershed. The program activities blend science, technology, engineering, and math to help participants understand the importance of a healthy river while encouraging water-conservation practices.

The program brings educational messages to students and the public at a variety of locations. Since its launch in 2015, the rolling exhibit has reached more than 10,000 people, including more than 200 visits to seventh-grade classrooms and participation in more than 30 community events.



### **Youth** **Teens4Green**

For one group of Frisco teenagers, it was not enough



to just talk about the importance of protecting the environment. This group, Teens4Green, decided to follow up their thoughts with action.

Founded in 2014, Teens4Green collaborates with their city's environmental-services department to host events that aim to educate the community and recruit volunteers to help with litter abatement and beautification. Since its inception, Teens4Green has grown to more than 330 registered members.

The city of Frisco, which is north of Dallas, estimates that the group saved the city more than \$18,000 in 2016 with their generous contribution of volunteer hours. During the year, Teens4Green hosted 43 events in which Frisco teens dedicated more than 900 volunteer hours. These events fall under four themes: pollution prevention, community outreach, agriculture, and education. The teenagers work together to protect the environment while developing marketable skills.

Last year for Frisco's annual Earth Day celebration, the teens assisted with event preparation and registration, litter cleanup, and managing recycling stations. During the event, more than 2,000 community volunteers were able to remove 1 ton of trash from the city's streets and parks.

### **Individual** **Martha McLeod**

One of the most difficult tasks that confront a teacher is finding ways to get through to his or her students. Once that connection has been made, however, learning can really take place.

For Martha McLeod, the solution has meant getting students out of their



chairs to experience the environment in a hands-on way. McLeod is an elementary science teacher at Fulton Learning Center, which is part of the Aransas County Independent School District, north of Corpus Christi.

McLeod's first program was a metal-recycling project that teaches youth about the importance of conserving natural resources. Using funds from that project, she and her students created wildlife

and vegetable gardens, where they raise chickens, grow vegetables, and learn about the pollination of plants.

McLeod, whose classroom houses an array of live animals as well as bones from a number of different species, is building on her success. She is continuing to develop programs that give her students the opportunity to touch, smell, hear, see, and taste what they are learning.

Perhaps the most impressive part of McLeod is her passion and generosity. She volunteers of her time outside of the classroom to implement her programs, with the hope of creating lifelong learners who understand the importance of protecting and conserving Earth's resources. 🌱



View videos of the award winners and see Gov. Greg Abbott's welcome address at [youtube.com/user/TCEQNews](https://youtube.com/user/TCEQNews).



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